AHPS support of the Interstate 131 S-Curve Project in Grand Rapids, Michigan

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S-Curve Project involved

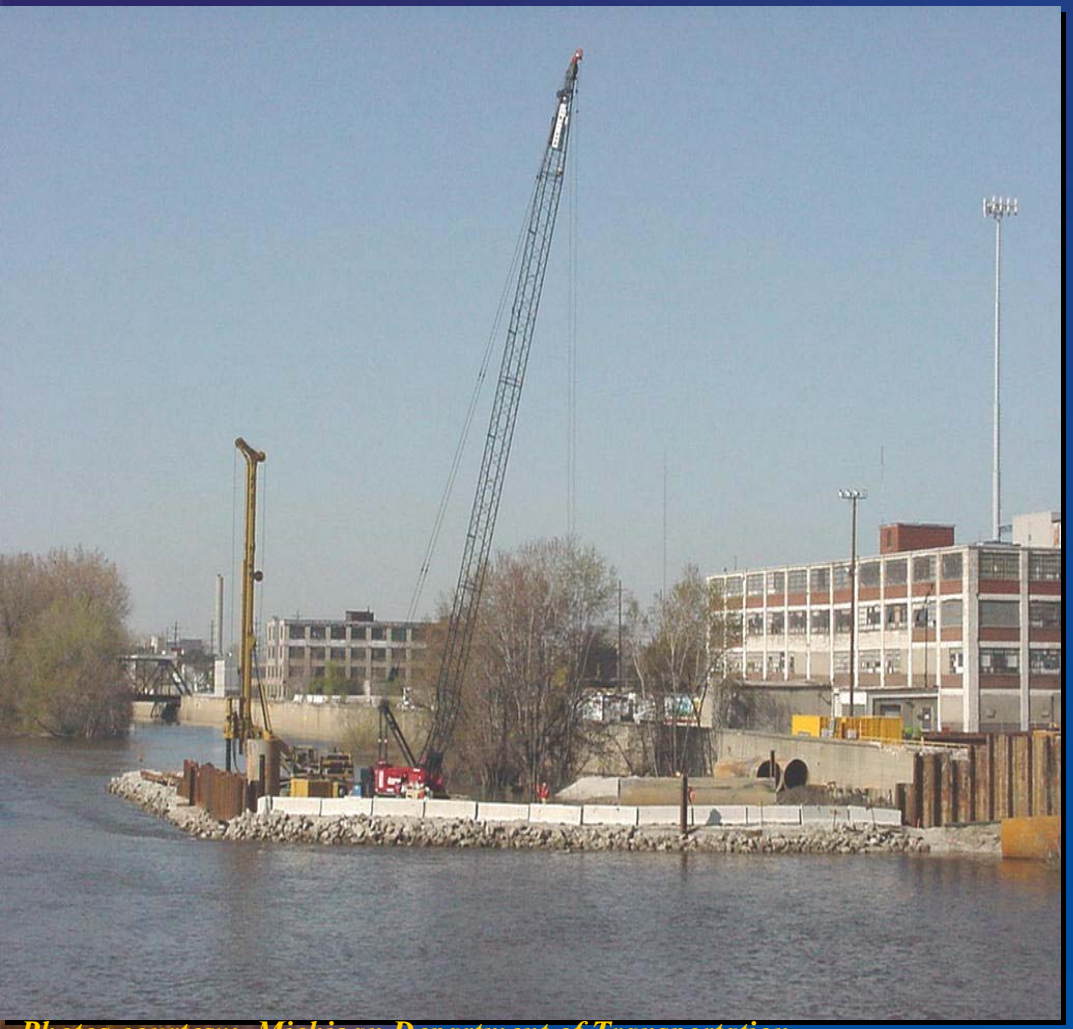
- Total reconstruction of 1.2 miles of Interstate 131 through downtown Grand Rapids and over the Grand River
- Six bridges reconstructed including one over the Grand River
- Cost in excess of $100 million

Birds-eye view of the S-Curve Project

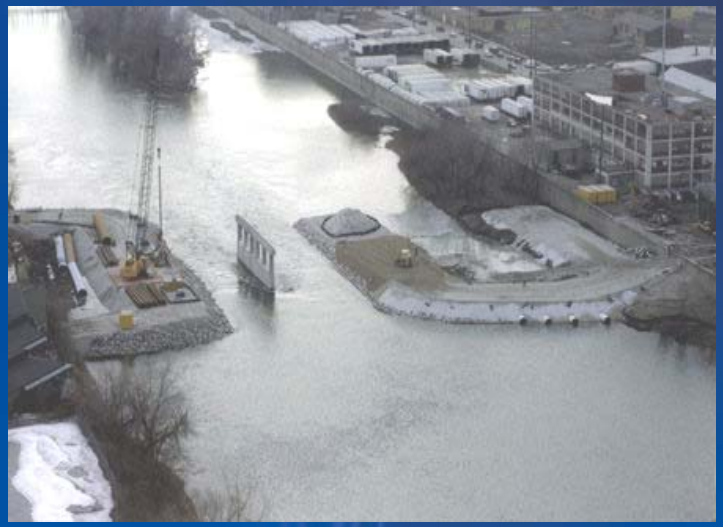
Photo courtesy: Michigan Department of Transportation

- Project was managed by the Michigan Department of Transportation
- Project was scheduled with significant rewards for early completion ($50,000/Day)
- Project would have normally taken three years to complete, but was open to traffic in ten months

S-Curve Project required



- Equipment and people to work in and around the stream, with an access road built into the river



Photos courtesy: Michigan Department of Transportation

S-Curve Project had

- Over $2 million worth of equipment on the causeway in the Grand River
- Equipment such as trucks, drill rigs, cranes, pumps, and generators

Photo courtesy: Michigan Department of Transportation

S-Curve Project required

Photo courtesy: Michigan Department of Transportation

- Partial removal of a flood wall protecting downtown Grand Rapids

How were AHPS forecasts used?

- Probabilistic and historical data helped the contractor to plan and bid for work.
- Daily plots of AHPS 5-Day forecasts were posted on the wall in the construction site office.
- During high flows, data were accessed via the internet several times a day.
- The forecasts ensured worker safety in the floodplain.
- The forecasts were used to determine movement and placement of heavy equipment in the floodplain.
- Long-range forecasts were used to plan the construction schedule of the bridge in and over the Grand River.

Users comment about AHPS forecasts

- "The hydrologic forecasts were timely."
- "The forecasts did insure worker safety." "Worker safety as the river was approaching design was a major concern."
- The hydrologic forecasts from AHPS were "surprisingly accurate."
- AHPS "helped when we were flooded out and we did not know when we could get back in the river – forecasts let us schedule work in other places and efficiently manage our resources."

More user comments about AHPS forecasts

- "Although we could monitor river elevation on the cofferdam, the ability to predict when we would need to suspend work and flood it (*the cofferdams would have to be flooded when the river levels got high to prevent them from buckling*), was a great management tool and 2nd check."
- "Every day was critical, we found the hydrologic forecasts accurate within one day and many times even less on predicting a certain elevation."

More user comments about AHPS

- Equipment had to be moved up out of the river several times. "By use of the hydrographs we knew the causeways would be topped by several feet and it would do so within 8-12 hours. We built a temporary bridge that day to bring out the equipment…without an accurate forecast that day we could easily have had major equipment damage, release of oils into the river and the like. In fact I heard a contractor down stream had a loader flooded that day in the river."

AHPS assisted project managers in their efforts to

- Avoid major equipment damage
- Prevent release of oils into the river
- Limit unnecessary project delays
- Mitigate unsafe working conditions
- Restrict cost overruns